

21 November 1988
CEL-DS12

AN5NN-A

ANALYZER, WAVE

1. **GENERAL** This procurement requires a wave analyzer that resolves and measures the amplitude and frequency of spectral components.
2. **CLASSIFICATION** Type III, Class 5, Style E, and Color R in accordance with MIL-T-28800 for shipboard applications.
3. **OPERATIONAL REQUIREMENTS** The equipment shall be capable of performing spectral analysis within the minimum specifications identified below.
 - 3.1 **Frequency specifications**
 - 3.1.1 **Frequency range** 15 Hz to 50 kHz
 - 3.1.2 **Frequency display resolution** 1 Hz or less
 - 3.1.3 **Frequency accuracy** ± 3.5 Hz
 - 3.1.4 **Frequency stability** ± 10 Hz per hour after a warm-up time of not more than 1 hour.
 - 3.1.5 **Automatic frequency control** The automatic frequency control (AFC) hold-in range shall be at least ± 800 Hz. An indication of an unlocked condition shall be provided.
 - 3.2 **Amplitude specifications**
 - 3.2.1 **Amplitude range** 100 nV to 30 Vrms
 - 3.2.2 **Amplitude display** Digital or mirror-backed analog meter
 - 3.2.3 **Amplitude accuracy** Log: ± 2 dB. Linear: $\pm 4\%$ of indication
 - 3.2.4 **Dynamic range** 80 dB minimum. An indication of input amplifier overload shall be provided.
 - 3.2.5 **Noise sidebands** 70 dB down 10 bandwidths away from the CW input signal.
 - 3.2.6 **Calibrator** An internal calibrator capable of verifying the amplitude accuracy to at least $\pm 1.5\%$ shall be provided.
 - 3.3 **Sweep specifications**
 - 3.3.1 **Resolution bandwidth** Selectable from 3 Hz to 300 Hz
 - 3.3.2 **Scan width** Selectable from 50 Hz to 50 kHz
 - 3.3.3 **Sweep time** Selectable from 0.1s to 2,000s

- 3.3.4 **Sweep modes** Repetitive, triggered single sweep, and manual sweep modes shall be provided.
- 3.3.5 **Sweep error light** A light that indicates when a sweep rate is too fast to capture the full response shall be provided.
- 3.4 **Input specifications**
 - 3.4.1 **Input RC** 1 megohm or greater shunted by 40 pF or less
 - 3.4.2 **Maximum input without damage**
 - a. ± 100 Vdc or Vrms on the 0.2V and higher ranges
 - b. ± 50 Vdc or Vrms on the 0.1V and lower ranges
 - 3.4.3 **Input connector** Female banana
- 3.5 **Outputs**
 - a. Tracking generator: An output for use with a compatible tracking generator.
 - b. X-Y recorder: Outputs shall include vertical and horizontal drives. Pen lift control shall be provided.
- 4. **POWER SOURCE** MIL-T-28800 nominal power source requirements are invoked. Operation at 400 Hz is not required. Maximum power consumption: 12W
- 5. **CALIBRATION INTERVAL** 12 months minimum. Confidence factor: 72%
- 6. **WEIGHT** 20 kg (44 lb) maximum